THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888

No. 10. MARCH 8, 1952 VOL 64.

THE INTRADERMAL INOCULATION OF LAPINISED RINDERPEST VACCINE

BY

G. R. SCOTT, B.SC., M.R.C.V.S.,
VETERINARY RESEARCH LABORATORY, KABETE, KENYA

In East Africa, rabbit-adapted rinderpest vaccine (Nakamura, Wagatuma & Fukusho, 1938 ; Baker, 1946 ; Haddow & Idnani, 1947 ; Kwong & Lee, 1947 ; Cheng & Fischman, 1948 ; Peng, Shu & Cheng, 1948 ; Brotherston, 1951) is gaining favour as a prophylactic against rinderpest and, in time, it is anticipated that it will largely replace formolised rinderpest spleen vaccine (Daubney, 1928), but as Cheng and Fischman (1948) and Hudson and Wongsongsarn (1950) have pointed out, the difficulty of obtaining an adequate supply of rabbits is often a serious drawback in its production. This problem is under examination at Kabete, and, with a view to a possible reduction in the dose required to protect a bovine, the intradermal route of inoculation has been investigated.

As early as 1754, in Russia, the routine scarification and subsequent application of discharges from a mild case of rinderpest was reported to give successful protection (Kearney, 1930). More recently, Ismail and Zudhi (1933) in Turkey, using formolised tissue intradermally, recorded that a dose of 5 c.c. per 100 kg. bodyweight conferred immunity in four days as against eight days required by the normal subcutaneous dose of 20 c.c. per 100 kg. bodyweight. Two French workers, Curasson and Zylbertal (1934), confirmed these findings but, on the other hand, Jacotot and le Roux (1935) stated that intradermal inoculations possessed no advantage over the subcutaneous route either as regards dosage, rapidity with which immunity is evoked or its duration. In India, Siddiqui (1944) successfully immunised cattle by a scarification technique using a goat-adapted virus.

MATERIALS AND METHODS

Virus Strains.—The lapinised rinderpest virus used in these experiments was the 795th generation of the Nakamura III strain (obtained from the National Bureau of Animal Industry, Nanking, China). At Kabete, the passages have been lebelled K1, K2, etc., these being equivalent to the 796th, 797th, etc., generations respectively.

Vaccine Preparation.—The vaccine was prepared by the method described by Brotherston (1951). For each batch, 10 rabbits were inoculated intravenously with the virus and killed about 65 hours later. The blood, spleen and mesenteric lymph gland were harvested and freeze-dried in ampoules in an Edwards machine (W. Edwards & Co. (London), Ltd.). The dried product was titrated in cattle by the subcutaneous inoculation of 2 c.c. of falling dilutions. Immunity was challenged by the subcutaneous inoculation of virulent bovine virus between 9 and 14 days later. If 2 c.c. of a 1 : 10,000 dilution protected, m.i.d. was regarded as 0·0002 g. and the vaccine was issued so that each field subcutaneous dose contained 20 m.i.d.s.

Challenge.—One gramme of fresh infected spleen tissue of the stock Kabete "O" strain of virulent bovine rinderpest virus was used for all challenges.

Cattle.—The cattle were grade animals purchased from European farmers and long experience at Kabete has shown that only a small percentage of such animals are not fully susceptible to rinderpest.

Inoculations.—During the routine titration of 30 different batches of lapinised vaccine additional animals were inoculated intradermally with varying amounts of the material under examination. Inoculations were made with a graduated 1 c.c. dental-type syringe, such as is commonly used for tuberculin testing. At first the site used was a fold of the skin in the middle third of the neck but later it was found more convenient to inoculate into the skin at the ventral aspect of the root of the tail. The morning and evening temperatures were recorded and the cattle challenged in the usual way.

In the field trial, seven herds of adult high-grade and pure-bred European cattle, totalling 1,022 head, were given 0·2 c.c. of a 1 : 500 dilution (0·0004 g.) of the vaccine intradermally. To begin with the animals were inoculated at the root of the tail but, because many cattle crushes in Kenya have a raised platform on one side, the most convenient site was found to be over the ribs on the side farthest from the platform. No antiseptic was used on the skin. At varying intervals between 24 and 85 days after inoculation random samples of the inoculated cattle were brought to the laboratory and challenged.

RESULTS

LABORATORY TRIALS

Data are recorded in Table I (over-leaf). Eight cattle were inoculated intradermally with falling dilutions of virus in 0·1 c.c. saline. Seven out of eight animals subsequently proved immune on challenge. The susceptible animal had received 0·1 c.c. of the 1 : 10,000 dilution (0·00001 g.). Using 0·2 c.c. of inoculum, 28 cattle were inoculated and 27 were found to be immune on challenge. The susceptible animal was one of three which were inoculated with 0·2 c.c. of a 1 : 40,000 dilution (0·000005 g.) of vaccine. No temperature reactions occurred.

FIELD TRIALS

Eighteen animals out of the total of 1,022 head inoculated in the field were challenged. One of these 18 proved susceptible (Table II).

TABLE II

RESULT OF CHALLENGING CATTLE INOCULATED INTRADERMALLY IN THE FIELD WITH 0·2 C.C. OF A 1 : 500 DILUTION (0·0004 G.) OF VIRUS

Herd	Total inoculated	Time of challenge	Number challenged	Result of challenge
1	50	24 days p.v.	1	Immune
2	143	27 "	2	"
3	270	38 "	5	"
4	162	52 "	3	One susceptible
5	150	62 "	3	Immune
6	178	63 "	3	"
7	69	85 "	2	"

NOTE.—p.v. = Post-vaccination.

TABLE I

A COMPARISON OF THE IMMUNISING VALUE OF LAPINISED RINDERPEST VACCINE GIVEN (*a*) INTRADERMALLY AND (*b*) SUBCUTANEOUSLY

Batch number	Intradermal					Subcutaneous
	Inoculum	Dilution of dried virus material	Calculated amount of dried virus material	Temperature reaction	Result of challenge	Inoculum — 2 c.c. of a 1 : 10,000 dilution (0·0002 g.) of dried virus material
K11-66	0·1 c.c.	1 : 1,000	0·0001 g.	Nil	Immune	2 c.c. of a 1 : 10,000 dilution (0·0002 g.) of these batches inoculated subcutaneously protected grade cattle.
K9-67	"	1 : 2,000	0·00005 g.	"	"	
K9-67	"	1 : 4,000	0·000025 g.	"	"	
K8-78	"	"	"	"	"	
K9-67	"	1 : 10,000	0·00001 g.	"	"	
K10-73	"	"	"	"	"	
K12-73	"	"	"	"	"	
K8-77	"	"	"	"	Susceptible	
K9-61	0·2 c.c.	1 : 10	0·02 g.	"	Immune	
K9-91	"	"	"	"	"	
K9-91	"	"	"	"	"	
K9-55	"	1 : 1,000	0·0002 g.	"	"	
K9-56	"	"	"	"	"	
K9-58	"	"	"	"	"	
K9-59	"	"	"	"	"	
K9-60	"	"	"	"	"	
K9-61	"	"	"	"	"	
K9-62	"	"	"	"	"	
K9-53	"	"	"	"	"	
K9-65	"	"	"	"	"	
K9-61	0·2 c.c.	1 : 2,000	0·001 g.	"	"	
K9-61	"	1 : 4,000	0·00005 g.	"	"	
K9-61	"	1 : 10,000	0·00002 g.	"	"	
K10-70	"	"	"	"	"	
K11-75	"	"	"	"	"	
K8-76	"	"	"	"	"	
K10-72	"	1 : 20,000	0·00001 g.	"	"	
K11-74	"	"	"	"	"	
K9-74	"	"	"	"	"	
K9-75	"	"	"	"	"	
K9-87	"	"	"	"	"	
K9-95	"	"	"	"	"	
K9-96	"	"	"	"	"	
K9-86	"	1 : 40,000	0·000005 g.	"	"	
K9-88	"	"	"	"	Susceptible	
K9-89	"	"	"	"	Immune	

DISCUSSION

The laboratory and field trials indicate that susceptible high-grade and pure-bred European cattle can be successfully protected by the intradermal inoculation of lapinised virus against needle challenge with virulent bovine rinderpest virus. The minimal immunising dose which protected regularly was found to be 0·00001 g. in 0·2 c.c. saline, 20 times less than that required by the subcutaneous route (Brotherston, 1951). The intradermal dose used in these field trials was 0·0004 g. in 0·2 c.c. saline, containing 40 immunising (intradermal) doses. The routine subcutaneous dose in Kenya is 0·004 g. in 2 c.c. saline which contains 20 immunising (subcutaneous) doses. Therefore, each intradermal dose represented a tenfold saving of vaccine and at the same time the number of immunising doses is doubled. Brotherston (1951) observed that grade cattle in Kenya did not react to the subcutaneous inoculation of lapinised rinderpest vaccine. In this respect lapinised virus vaccine differed from goat-adapted virus vaccine. In these experiments it has been shown that no reaction occurred following the intradermal inoculation of lapinised vaccine. To complete the picture an animal at Kabete was inoculated with 0·02 g. of goat-adapted vaccine intradermally and a typical thermal reaction resulted. The dangers arising from the absence of a patent reaction observable by field officers have been emphasised by Scott and Brotherston (1951).

The field trials revealed certain inherent shortcomings in the ordinary 1 c.c. dental type of syringe for this work. The principal weakness was in the construction of the plunger, the composition rubber of which perished rapidly causing leakages. Possibly the McLintock automatic syringe (McLintock, 1948) would be preferable.

With practice the intradermal technique was found to be as quick as, if not quicker than, the subcutaneous method. Unfortunately, however, it is felt that inoculators using the intradermal route would be liable to be careless in checking that the correct amount of inoculum had actually entered the skin.

These practical difficulties are such that it is probable that the intradermal route of inoculation of lapinised rinderpest vaccine will be resorted to only when there is a shortage of vaccine.

SUMMARY

The intradermal inoculation of freeze-dried lapinised rinderpest virus protected susceptible cattle against challenge with virulent bovine rinderpest virus.

The intradermal route resulted in a twentyfold reduction in the amount of virus required for successful immunisation.

The practical utilisation of the intradermal route for protecting cattle against rinderpest is discussed.

Acknowledgments.—I wish to thank Dr. H. S. Purchase,

Chief Veterinary Research Officer, Veterinary Department, and Mr. J. G. Brotherston, of the East African Veterinary Research Organisation, for their help and encouragement. I am also indebted to Mr. D. Hague, Veterinary Officer, Nanyuki, for help with the field trials. This paper is published by permission of the Director of Veterinary Services, Kenya.

References

Baker, J. A. (1946.) *Amer. J. vet. Res.* **7.** 179.
Brotherston, J. G. (1951.) In press.
Cheng, S. C., & Fischman, H. R. (1948.) F.A.O. Rinderpest Control Meeting, Nairobi.
Curasson, G., & Zylbertal. (1934.) *Bull. Acad. vet. Fr.* **7.** 265. Abstract in *Vet. Bull.* **5.** 14.
Daubney, R. (1928.) *J. comp. Path.* **41.** 228.
Haddow, J. R., & Idnani, J. A. (1947.) *Ind. J. vet. Sci.* **17.** 1.
Hudson, J. R., & Wongsongsarn, C. (1950.) *Brit. Vet. J.* **106.** 453.
Ismail, R., & Zudhi, M. (1933.) *Arch. wiss. prakt. Tierklk.* **66.** 70. Abstract in *Vet. Bull.* **3.** 699.
Jacotot, H., & Le Roux. (1935.) *Bull. Soc. Path. exot.* **28.** 753. Abstract in *Vet. Bull.* **6.** 327.
Kearney, W. (1930.) Eleventh Int. Vet. Congr., London.
Kwong, F. J., & Lee, C. T. (1947.) *Chin. J. Anim. Husb.* **7.** 23. Cited by Cheng, S. C., & Fischman, H. R. (1948.) F.A.O. Rinderpest Control Meeting, Nairobi.
McLintock, J. (1948.) *Vet. Rec.* **60.** 232.
Nakamura, J., Wagatuma, & Fukusho, K. (1938.) *Jap. J. vet. Sci.* **17.** 185. Cited in *Vet. Bull.* **9.** 536.
Peng, K. S., Shu, H. S., & Cheng, C. T. (1948.) *Chin. J. Anim. Husb.* **7.** 1. Cited by Cheng, S. C., & Fischman, H. R. (1948.) F.A.O. Rinderpest Control Meeting, Nairobi.
Scott, G. R., & Brotherston, J. G. (1951.) In press.
Siddiqui, T. A. (1944.) *Ind. J. vet. Sci.* **14.** 158.

PRESERVATIVES FOR MILKS CONTAINING *MYCOBACTERIUM TUBERCULOSIS*

BY

A. J. STEVENS* AND M. A. SOLTYS,

Department of Veterinary Pathology, University of Liverpool

Studies already reported by Gloyne (1939), Holm and Lester (1941) and many other workers, have shown that the inoculation of the guinea-pig is far superior to cultural methods for the detection of the bovine tubercle bacillus. The disadvantage of the biological test, apart from the delay in securing a result, is the danger of premature death of the inoculated animals, usually through intercurrent disease. Such an occurrence necessitates a further test on guinea-pigs. The collection of repeat samples from the herd or from an individual animal places a burden on the practitioner or on the field staff of the Ministry of Agriculture, and in order to avoid asking for a second sample of milk the original milk can be stored at low temperature. Nevertheless, in the absence of a preservative such samples may show a heavy contamination with a variety of organisms and are then unsuitable for guinea-pig inoculation unless treated with 4 per cent. sodium hydroxide, or a similar agent, a procedure which is not without risk of damage to the tubercle bacillus. In hot weather, samples which have been sent by post may have become sour and are then quite unsuitable for a biological test without preliminary treatment.

It has been suggested that boracic acid or borax might serve as a suitable bacteriostatic agent without harming the tubercle bacillus, but no evidence could be found that these chemicals had been submitted to detailed tests to determine their activity on acid-fast and non acid-fast bacteria in milk. Although the investigation has been mainly confined to borax, other chemicals, some of which have been used for the isolation of tubercle bacilli from contaminated material, also were examined.

* Animal Health Trust scholar.

Materials and Methods

Non Acid-fast Organisms.—The bacteria used in the experiments were either strains freshly isolated from milk samples sent in for routine examination or were old laboratory cultures. The following organisms were selected :—

Staphylococcus aureus	isolated from milk
Streptococcus agalactiae	" "
Corynebacterium pyogenes	" "
Bacterium coli	old laboratory strain
Proteus vulgaris	" "
Pseudomonas pyocyanea	" "

Acid-fast Bacilli.—In the preliminary experiment, *Mycobacterium phlei* was used on account of its rapid growth and easy detection on suitable media. Critical tests were carried out with *M. tuberculosis* bovine type isolated from milk and of moderate virulence for the guinea-pig.

Media.—Plain nutrient agar was used for the cultivation of *Staph. aureus*, *Pseudomonas pyocyanea*, *Proteus vulgaris*, and *Bact. coli*, while *C. pyogenes*, *Str. agalactiae* were cultivated on 10 per cent. blood agar. *M. phlei* and *M. tuberculosis* were grown on Herrold's egg yolk agar.

Chemical Agents.—The chemicals used were those which are easily obtainable and which are known to have some inhibitory effect on Gram-positive and Gram-negative but are believed to be without effect on acid-fast organisms.

The chemicals selected for the preliminary tests were borax, boracic acid, sodium carbonate, brilliant green and sodium hypochlorite. They were used at various strengths in order to find a concentration which would not alter grossly the physical nature of the milk, and at the same time would have no appreciable inhibitory effect on *M. tuberculosis*. Two commonly used disinfectants, dettol and cetavlon, were also examined.

Cultural Tests.—Fresh dairy milk was sterilised by autoclaving at 15 lb. for half an hour. The organisms to be tested, except *M. phlei* and *M. tuberculosis*, were washed off solid media into sterile saline solution and diluted to match a No. 3 Brown's opacity tube. Further dilutions were made up in milk to give a convenient colony count after 48 hours' incubation at 37° C.

In the case of *M. phlei* a two-week-old culture was weighed and suspended in saline solution to give concentrations of 10^{-3}, 10^{-4} and 10^{-5} mg. respectively per ml. One ml. of each dilution was centrifuged, the sediment inoculated on Herrold's media and the colonies counted after incubation of the culture for 10 days. It was found that dilutions of 10^{-4} and 10^{-5} gave convenient counts. These concentrations were made up in the sterilised milk and used for further tests.

Each sample was divided : one part served as a control while the other received a predetermined amount of the chemical under test. Similar dilutions were made in saline instead of in milk. The suspensions containing Gram-positive and Gram-negative organisms were left for one week at room temperature and the number of organisms surviving was determined after 24 and 72 hours, and seven days.

Experiments at refrigerator temperature (+4° C.) showed that borax and other chemicals tested were bacteriostatic but failed to reduce the number of Gram-positive and Gram-negative organisms.

Results

Cultural Methods

Effect of Various Agents on Staph. aureus and Bact. coli.—Milk samples contaminated with *Staph. aureus* and *Bact. coli*

were used in the initial test to find a suitable strength of borax. Concentrations ranging from 0·5 per cent. to about 5 per cent. (maximum solubility) were added and the samples left at room temperature for seven days.

It was found that borax was more active in saline than in milk. (Figs. 1 and 2.) A concentration of 0·5 per cent. in saline completely suppressed both organisms in five days or less, but in milk 1 per cent. was required for preventing multiplication of *Bact. coli* and 2 per cent. for *Staph. aureus*.

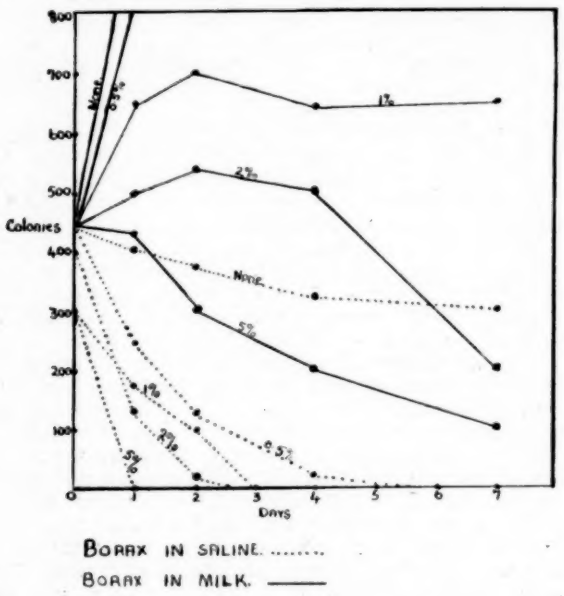


Fig. 1.—The growth curves of *Staph. aureus* in saline and milk containing various concentrations of borax.

Further tests were made on the action of other chemicals, *e.g.*, sodium carbonate, sodium hypochlorite, boracic acid, brilliant green, cetavlon and dettol on *Staph. aureus* and on *Bact. coli* as compared with 2 per cent. borax. (Figs. 3 and 4.) Cetavlon (0·5 per cent.), brilliant green (0·1 per cent.) and sodium hypochlorite (0·1 per cent.) were highly bacteriostatic to *Staph. aureus* (Fig. 3). Sodium hypochlorite was also effective against *Bact. coli* but cetavlon merely prevented further multiplication whilst brilliant green, as might have been anticipated, was completely ineffective (Fig. 4).

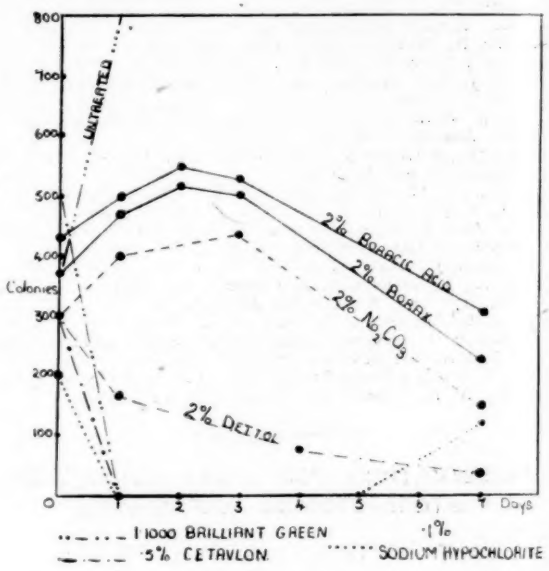


Fig. 3.—The growth curves of *Staph. aureus* in milk treated with various chemicals.

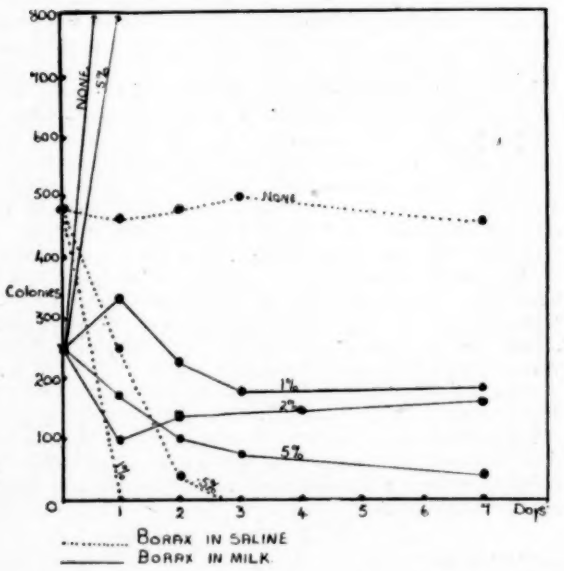


Fig. 2.—The growth curves of *B. coli* in saline and milk containing various concentrations of borax.

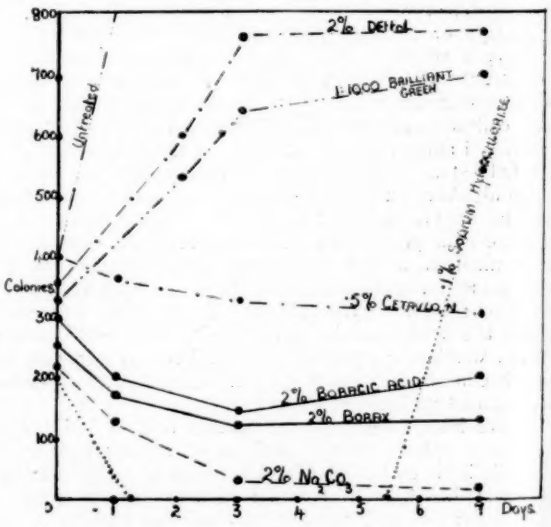


Fig. 4.—Growth curves of *B. coli* in milk treated with various chemicals.

Dettol (2 per cent.) was only moderately effective against the Gram-positive organisms and was valueless against *Bact. coli*. Borax (2 per cent.), boracic acid (2 per cent.) and sodium carbonate (2 per cent.) caused a steady reduction in the bacterial population at the fourth day, the effect being more marked with *Staph. aureus*. It will be noted that sodium hypochlorite was effective for the first five days only, after which the bacteria multiplied rapidly. This effect was probably due to the instability of this agent. Sodium carbonate and sodium hypochlorite produced physical changes in the milk which rendered them less suitable than borax. Of the chemicals used, it appears that borax and sodium hypochlorite were the most suitable. Borax, although less active than hypochlorite in the early stages, is stable and produces no physical change in the milk.

Other Non Acid-fast Organisms.—Whilst *Staph. aureus* and *Bact. coli* were convenient organisms representative of the Gram-positive and Gram-negative groups, other bacteria are found in milk and it is therefore necessary to check the suppressive reaction to borax on a wider range of organisms.

Table I

Bacteriostatic Effect of 2 per cent. Borax on Various Gram-positive and Gram-negative Organisms

Organism	Number of colonies from untreated sample				Number of colonies from treated sample			
	Time after infection of milk				Time after infection of milk			
	0 hr.	24 hrs.	72 hrs.	7 days	0 hr.	24 hrs.	72 hrs.	7 days
Staph. aureus	140	935	Over 1,000	Over 1,000	138	135	117	63
Str. agalactiae	25	47	213	308	28	25	24	23
C. pyogenes	218	233	222	311	247	217	228	163
Bact. coli	45	Over 1,000	Over 1,000	Over 1,000	49	57	54	63
Pseudomonas aeruginosa	238	471	581	801	251	232	240	128
Proteus vulgaris	30	Over 1,000	Over 1,000	Over 1,000	36	Over 1,000	Over 1,000	Over 1,000

The results (Table I) which confirmed the bacteriostatic action of borax on *Staph. aureus* and *Bact. coli* also showed a marked effect on *Str. agalactiae*, *C. pyogenes* and *Pseudomonas aeruginosa*. *Proteus vulgaris*, however, was not inhibited.

The Effect of Borax on the Growth of *M. phlei* in Milk

M. phlei was added to sterile milk to make final concentrations of 10^{-4} mg. and 10^{5} mg. per ml. One sample of each concentrate was treated with 2 per cent. borax, one with 5 per cent. borax and one left untreated as a control. Each was left at room temperature for a period of 12 weeks. Colony counts were made at intervals of two weeks. A dilution of 10^{4} mg. per ml. treated with 2 per cent. borax gave an initial count of 407 colonies per plate. The counts declined to 131 colonies at the 12th week with an acceleration at the fourth week, while controls showed a drop from 511 colonies to 342. Similar results were obtained with 5 per cent. borax. Milk samples containing 10^{5} mg. per ml. of bacilli which had an initial count of 59 colonies showed the same number after four weeks. Thereafter the treated samples declined progressively, dropping to about 50 per cent. of the initial count after 12 weeks. Untreated samples showed only very slight drop in the number of colonies during the period of 12 weeks.

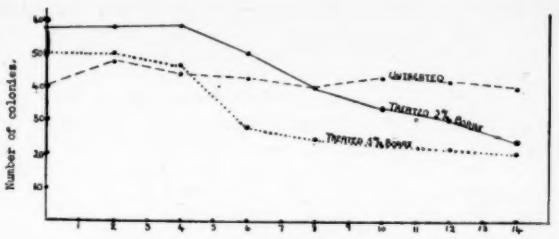


Fig. 5.—The survival rate of *M. phlei* in milks containing 10^{-5} mg./ml. treated with borax.

Biological Methods

The Effect of 2 per cent. Borax on the Survival of Tubercle Bacilli Suspended in Milk

A strain of *M. tuberculosis* var. *bovis* of moderate virulence for the guinea-pig was selected. It was important to determine with some accuracy the minimum weight of the test organism which would produce recognisable lesions in six weeks. It was found that 1 ml. of 10^{-4} mg. per ml. was the lowest dilution which regularly produced tuberculosis. 10^{-5} mg. per ml. inoculated into two guinea-pigs produced slight enlargement of the inguinal glands, in which acid-fast organisms were found by microscopical examination in one, while in the other it was negative. 10^{-6} mg. per ml. failed to produce tuberculosis in two animals.

Sterile milk samples, containing concentrations of 10^{-3} mg. per ml. and 10^{-4} mg. per ml. tubercle bacilli respectively, to which borax was added were left at room temperature for 10 weeks. Suitable controls without borax were included. Every second week, 1 ml. of each sample was inoculated intramuscularly into guinea-pigs, which were killed and examined six weeks later. The results are shown in Table II.

Table II

Effect of 2 per cent. Borax on the Survival of Bovine Tubercle Bacilli in Milk

Concentrations of tubercle bacilli in mg. per ml.	The time which elapsed after adding borax and inoculating guinea-pigs* (weeks)	Lesions in guinea-pigs killed six weeks after inoculation	Tubercle bacilli demonstrated
10^{-3}	4 (control)	+++	+
	4	+++	+
	6 (control)	+++	+
	6	+++	+
	8 (control)	+++	+
	8	++	+
	10 (control)	+++	+
	10	+	+
10^{-4}	4 (control)	++	+
	4	++	+
	6 (control)	++	+
	6	—	—
	8 (control)	++	+
	8	—	—
	10 (control)	+++	+
	10	+	+

* Two guinea-pigs were inoculated each time.

+++ Tuberculosis, commencing generalisation.
++ Tuberculosis of regional lymphatic nodes.
+ Tuberculosis of one lymphatic node.
— No macroscopic lesions.

It was found that with the untreated samples, both dilutions produced tuberculous lesions in all the guinea-pigs. In samples treated with borax, the dilution of 10^{-3} mg. per ml. produced lesions regularly. Those containing 10^{-4} mg. per ml. of tubercle bacilli were regularly positive only with samples exposed to 2 per cent. borax for four weeks. After that time the results were irregular : lesions were much smaller and in two cases (six weeks and eight weeks respectively) none was detected.

Discussion

It appears from the foregoing observations that of the several chemicals tested for the preservation of milks containing tubercle bacilli, 2 per cent. borax is the most suitable. This substance does not produce physical changes in milk, it is stable and it is equally effective in suppressing the growth of Gram-positive and Gram-negative organisms, normally found in milk, with the exception of *Proteus vulgaris*. On the other hand, its effect on acid-fast organisms was slight. Some other agents, such as sodium hypochlorite and sodium carbonate, were quite active, but they were not subjected to a detailed study because they altered the milk and made it unsuitable for guinea-pig inoculation. The most disappointing results were obtained with two disinfectants, dettol and cetavlon, which failed to prevent multiplication of Gram-negative organisms, although they had a good effect on Gram-positive organisms. It would appear from this experiment that if 2 per cent. borax is used for the preservation of tuberculous milk samples, guinea-pigs should be inoculated within a period of four weeks unless the number of tubercle bacilli in the milk is relatively high.

Summary

The bacteriostatic effect of 2 per cent. borax, 2 per cent. sodium carbonate, 2 per cent. dettol, 0.1 per cent. sodium hypochlorite, 0.1 per cent. brilliant green and 0·1 per cent. cetavlon has been examined against Gram-positive and Gram-negative organisms in milk, in order to find the most suitable preservative for milk samples examined for the presence of tubercle bacilli.

Borax diluted in 2 per cent. concentration in milk was the most suitable preservative for milk containing tubercle bacilli, provided that the milk sample containing borax was inoculated into guinea-pigs within four weeks.

We wish to express our thanks to Professor R. E. Glover for his valuable advice, criticism and interest in this work.

References

Gloyne, S. R. (1939.) *Lancet.* **2.** 137.
Holm, J., & Lester, V. (1941.) *Acta. Tuberc. Scand.* **16.** 3.

F.A.O. HEADQUARTERS TRANSFERRED TO ROME

The Headquarters of the Food and Agriculture Organisation of the United Nations, formerly situated in Washington, D.C., have been transferred to Viale delle Terme di Caracalla, Rome, Italy.

* * * * *

FOOT-AND-MOUTH DISEASE IN CANADA

In its issue of February 27th *The Times* reports that an outbreak of foot-and-mouth disease among cattle in a part of Saskatchewan has led to restrictions by the Canadian Department of Agriculture. Quarantine areas have been established in all districts where the disease is known or suspected, and in a number of adjacent municipalities. Outward movement of livestock from stockyards in Saskatchewan and Manitoba which might have received animals that had been near infected cattle or premises is prohibited.

THE CARE OF ANIMALS DURING TRAVEL BY AIR

BY

R. C. G. HANCOCK, B.Sc., M.R.C.V.S.,
Chief Veterinary Officer, R.S.P.C.A.

It does not often fall to the lot of a veterinary surgeon to have the good fortune to work out a design for a functional building to house a theoretically infinite number of species of living creatures, healthy or diseased, and at the same time possibly subject to quarantine and Customs regulations.

When in 1947 certain untoward incidents concerning animals travelling by air came to the notice of the R.S.P.C.A., contacts were made with the transport officers of a number of airlines, both British and foreign, notably those operating from London Airport and Northolt. At that time the knowledge of the optimum conditions under which a given species of animal should travel by air was scanty. As a result untoward incidents were frequent. British airlines were at the time only beginning to " muscle-in " on the business of carrying livestock, and were keenly anxious to learn the tricks of a trade in which the American and Dutch airlines had already gained a big start.

After conferences had been held with those concerned, two suggestions emerged. One was that I should act as a collecting agent for the recording of flying experiences in relation to livestock of all kinds, that I would record this knowledge, and make it available on request to any transporter. Much of the material gained in this manner has now been incorporated by several air companies in comprehensive textbooks, for their employees. The second suggestion made by the R.S.P.C.A. was that some sort of " St. Bernard's Hospice " was needed at airports to receive animals delayed on their journeys and in need of food, lodging, exercise, first-aid or veterinary attention.

So far as could be ascertained, the factors acting adversely on transport of living creatures were :—

1. *Altitude*
(*a*) Too rapidly gained or lost ;
(*b*) Too great for longer than the species in question can endure.
2. *Temperature*
(*c*) Too rapidly changed ;
(*d*) Too long maintained at an unaccustomed level.

1 and 2 are closely linked, and the adverse effects noted may be the result of a combination of both factors.

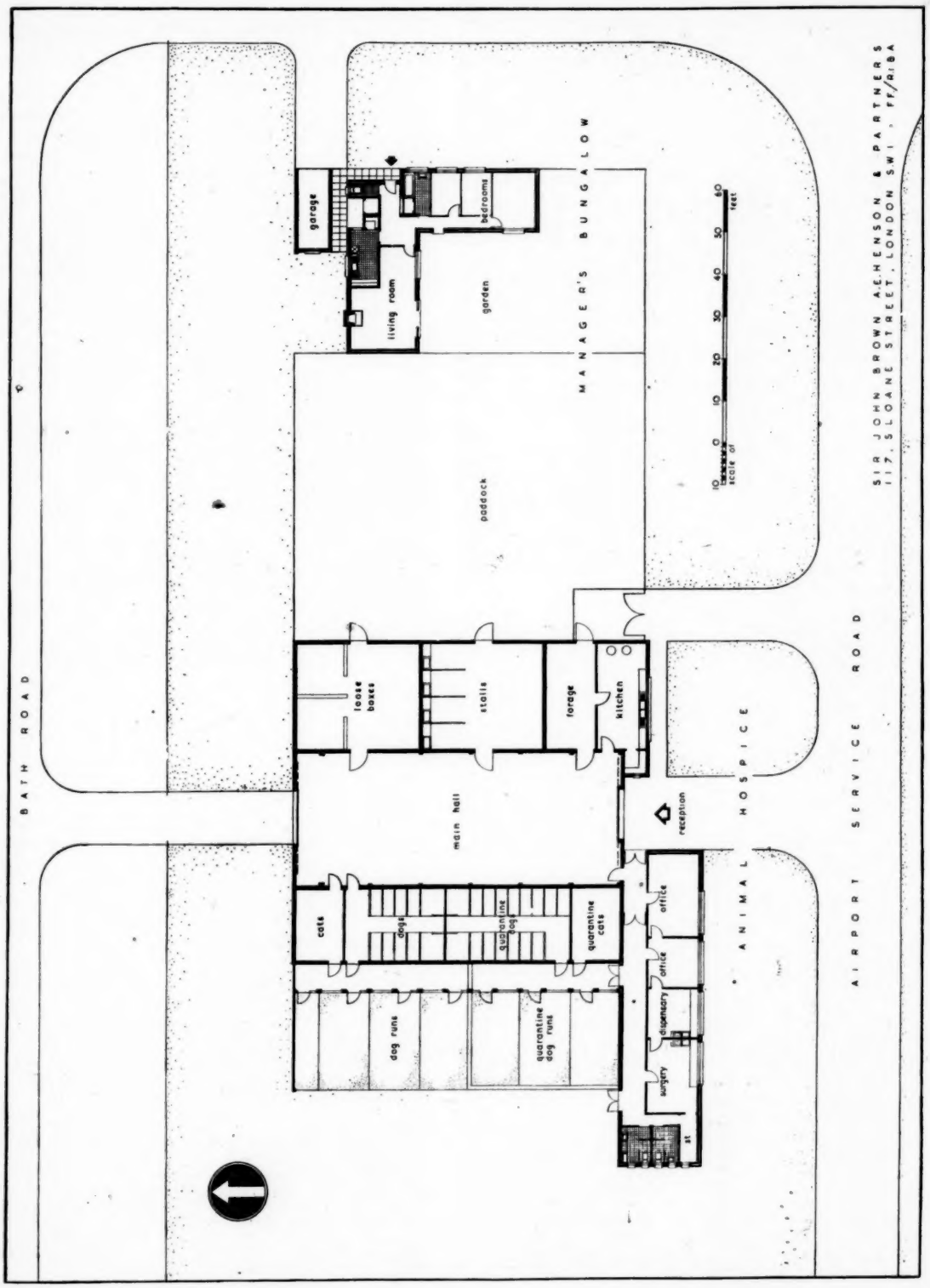
3. *Species Idiosyncrasy*.—As might be expected, birds are the best travellers. Short-nosed dogs of the bulldog type are notoriously bad risks. Most other species can endure much the same environment as human travellers by air.

4. *Nature of Container*.—Deaths have been recorded from apoplexy, not always due to heat. Many greyhounds died before it was discovered that the containers they travelled in were very like starting traps. The noise of the motors of the aeroplane when they started up led to expectation by the animal that the hare was on its way. When the normally expected release from the container did not ensue, the animals became frenzied, with cerebral haemorrhage as the cause of death. Claustromania is a common and lethal phenomenon where dogs are packed away in freight compartments alone for a long voyage, with no human contact at regular intervals.

By way of example to 1 above, whereas 100 fish can be kept happily in a given gallonage of water at sea level, at 20,000 feet altitude the oxygen content is halved and so the number of fish must be halved too before the flight commences, or the gallonage must be doubled, if the whole consignment is not to be lost *en route* from anoxia.

Species vary in their reactions to both altitude and tem-

R.S.P.C.A. ANIMAL HOSTEL FOR LONDON AIRPORT



perature. Occasionally pilots are forced to change to dangerous altitudes, that were not anticipated, with accompanying drops of temperature and rarefaction of air. Until recently pressurised freight holds were uncommon, and animals are not permitted to travel in the pressurised passenger cabins.

These instances illustrate the types of problem a veterinary surgeon encounters in the course of handling queries about animals travelling by air.

Though the transport experience of British airlines had not as yet yielded much to guide me, since no "hospices" or hostels for animals travelling by air as yet existed anywhere in the world, it appeared that the following were the principal conditions that had to be taken into account :—

1. Some 40 of the dog family and 35 of the cat have travelled by air and are already listed as subject to quarantine, and there are thousands of other species that have been conveyed by air. (At the time of writing one passenger in nine is an animal.)

2. Quarantine buildings for some species, mainly on account of rabies, would be needful under conditions approved by the Ministry of Agriculture.

3. The buildings must be so heated that they are capable of receiving animals and birds from tropical areas, and as yet unacclimatised to temperate regions.

4. It appeared likely that occasional large consignments of zoological and other mixed collections might have to be given temporary shelter in their cages.

5. Some animals would be received in an uncustomed state from aeroplanes. The Customs and Excise authorities would insist on certain conditions in regard to locks, bolts and bars in the building.

6. The Ministry of Civil Aviation would have to obtain the assent of the Treasury to the allocation of airport land for the purpose.

7. The height of the building being restricted to an overall height of 18 feet, only one storey was possible.

In accordance with these conditions, rough sketches were submitted to Sir John Brown & Partners, the architects. A central hangar-like building was suggested that at need could be heated, and into which a number of vehicles containing cages of animals could be driven, and safely locked in for short periods.

On one flank of the hangar are ranged blocks of quarantine and non-quarantine kennels and catteries with appropriate runs. On the other flank stabling, comprising loose boxes and stalls is arranged, with an enclosed paddock opening therefrom.

At the eastern end of the paddock will be situated the bungalow residence of the manager.

Fronting the kennel side of the building, and looking out on the airport are the offices, pharmacy and surgery. On the opposite side fronting the stable block are the kitchen, forage stores and larder.

In view of the cost, the proposed flue system of controlled heat and ventilation has had to be abandoned and local thermostatically-controlled tubular electric heater units fitted instead. Cooking will be by gas.

A delivery van for collection from aeroplanes already has been presented to the Society, and it is hoped other gifts, such as X-ray equipment, will follow.

As only temporary short-term boarding or first-aid treatment of the animals received will be undertaken, and no fees can be accepted, the Society has taken on an expensive project, but one that, by some means or other, will need to be extended to all major airports throughout the world that handle traffic in livestock, if suffering and loss of life are to be reduced to a minimum.

I am indebted to Col. A. E. Henson, of Sir John Brown & Partners, for the simplified drawing of the ground plan. That it has taken 18 months from the acceptance of the plans to commence excavating the foundations is some measure of the extraordinary difficulties that at the present time accompany the design and construction of a building urgently needed by the airway corporations using London Airport.

CLINICAL COMMUNICATION

ANAESTHESIA OF THE BOVINE TEAT

R. W. JOHNSTON, M.R.C.V.S.,
LONGSIDE, ABERDEENSHIRE

Even when adequate help is available, restraint of the cow in teat surgery, especially when sutures require to be inserted, is always a problem.

Until now there has not been a satisfactory method of nerve block, or other form of local anaesthesia, and general anaesthesia is not always justified. A method which was in the first instance communicated to me personally and recently published by G. Dykes (1951) has, after reasonably satisfactory trial in the field, given satisfaction. It is in reference to the use of this method that the following case is instanced and recorded.

Subject.—Ayrshire cow, lactating.

Lesion.—Deep lacerated wound of the off foreteat, extending from the tip of teat upwards for 1½ inches.

Examination and Procedure.—The teat was very painful, the animal resenting delicate handling of the teat. It is admitted that the use of the teat syphon needle is justified only as and when other means of draining off the milk fails to achieve this end. In this instance recourse was made to employment of the teat syphon needle to draw off milk which would dilute and otherwise interfere with the action of the local anaesthetic.

Planocain (adrenalin free) 10 c.c. was injected rapidly into the teat canal. Five minutes were allowed to elapse, and when the teat was then tested for sensitivity the animal showed no resentment, though sensitivity was retained from the base upwards. Eleven nylon sutures (Armour's) were inserted without any restraint of the animal. All aseptic surgical precautions were employed throughout and penicillin injected via intramammary tube.

Experience in other cases has been equally gratifying. Beyond a very temporary suspension of milk flow, which endures for a few hours, all cases have made uneventful recovery.

SUMMARY

Teat anaesthesia in the lactating cow is described.

Such anaesthesia is adequate for any operation which involves surgery of the teat from tip to base, and while facilitating surgical procedure it also reduces the risk to the surgeon.

REFERENCE

DYKES, G. (1951.) *Brit. Vet. J.* **107.** 427.

WEEKLY WISDOM

We can agree with Lord Radcliffe that men are more important than institutions, and that the first task is to seek the men who can be trusted to exercise power with wisdom and responsibility. But prudence would also counsel us so to shape or recast our institutions that they will better serve our ends, and offer the least temptation or opportunity for mischief to any less scrupulous individuals who may find themselves with power and authority.—"Nature."

ABSTRACTS

Action of Ascorbic Acid on Tuberculin Sensitivity in Guinea-pigs*

In a previous article the authors had shown that thyroxine increases tuberculin sensitivity and cortisone diminishes it. In this paper, using the response to intradermal tuberculin as a measure of allergic hypersensitivity in albino guinea-pigs infected with B.C.G., they found that guinea-pigs on a diet grossly but not completely deficient in ascorbic acid have a relatively high sensitivity. This sensitivity is diminished by adding ascorbic acid to the diet, but not by providing ascorbic acid in raw cabbage. The factor in cabbage which leads to the inhibition of the desensitising action of ascorbic acid contained in the cabbage also inhibits the desensitising action of excess of ascorbic acid added to the diet. Single injections of cortisone or of A.C.T.H. diminish the sensitivity of guinea-pigs on a cabbage diet.

Single injections of cortisone or of A.C.T.H. do not alter the sensitivity of guinea-pigs either on a basal diet deficient in ascorbic acid, or on this diet augmented by ascorbic acid. The effect of a cabbage diet on ascorbic acid desensitisation is imitated by a single injection of gluthathione.

The authors conclude that there is in cabbage a factor which on ingestion leads to the inhibition of the desensitisation produced by the metabolism of ascorbic acid in the tissues of the allergic guinea-pig; and that the desensitising action of cortisone or of A.C.T.H. in cabbage-fed animals is indirect, depending on the reversal of the cabbage effect by the hormones. The cabbage factor may possibly be an -SH compound.

J. F.

* **Action of Ascorbic Acid on Tuberculin-sensitivity in Guinea-pigs and its Modification by Dietary and Hormonal Factors.** Long, D. A., Miles, A. A., & Perry, W. L. M. (1951.) *Lancet.* **1.** 1085.

* * * * *

Use of Hyaluronidase (Spreading Factor) in Veterinary Practice*

The "spreading factor" discovered by Duran-Reynals in mammalian testicular extract was identified by Chain and Duthie in 1939 as an enzyme capable of breaking down hyaluronic acid and consequently of permeating the "ground substance" of connective tissue spaces. This substance, known as hyaluronidase, is of value to the veterinarian since it enables otherwise painful medicaments to be more comfortably injected; it facilitates the absorption of large quantities of sterile fluids introduced subcutaneously (hypodermoclysis), and as an addition to local anaesthetic considerably increases the efficiency of regional anaesthesia by nerve block.

Snyder and Skelley obtained the best results by reconstituting 75 Turbidity Reducing Units (Wyeth) hyaluronidase in 500 c.c. solution. The absorption of this quantity of dextrose-saline given subcutaneously was extremely rapid and painless in all but two or three of 15 dogs so treated. By increasing the concentration to 250 TRU absorption appeared to be twice as slow, and 500 TRU in 500 c.c. fluid produced no effect.

Of 150 TRU hyaluronidase dissolved in 50 c.c. sterile distilled water and stored in a refrigerator, 1 c.c. was added to each of 11 × 5 c.c. doses canine distemper vaccine. In nine vaccine-hyaluronidase injections absorption was rapid and painless but two animals evinced some discomfort. The writers observed that the reconstituted hyaluronidase remained stable in a refrigerator for 13 weeks. [This is in marked contrast to the recommendations of a recent British commercial brochure, which advises that the solution be used within eight hours of constitution. Some confusion also exists among authorities as to the standardisation of units.]

J. P.

* **Use of Hyaluronidase to Aid Absorption of Distemper Vaccine, Distemper Serum and Hypodermoclysis Solutions in Veterinary Practice.** Snyder, R. C., & Skelley, J. F. (1951.) *Univ. Penn. Bull.* No. 123. 110-113.

* * * * *

Isolation of Newcastle Disease Virus from the Human Eye*

Although conjunctivitis has been attributed to Newcastle disease virus, the agent has been isolated from humans on only five occasions. The authors describe the isolation of the virus from the eye of a veterinary surgeon with conjunctivitis who had handled infected chickens a few days before. The nature of the virus, which was isolated by passage in chick embryos, was confirmed by the inoculation of chickens and by haemagglutination inhibition tests. The patient, who recovered without treatment in five days, had antibodies, demonstrable by neutralisation tests, 36 to 60 days after the onset of symptoms, in unheated plasma samples (absent in a single heated sample). All samples failed to inhibit haemagglutination.

[The author does not state whether the neutralisation tests were carried out with fertile eggs or with chickens.]

A. W. G.

* **Isolation of Newcastle Disease Virus from the Eye of a Human Being.** Gustafson, D. P., & Moses, H. E. (1951.) *J. Amer. vet. med. Ass.* **118.** 1-2 (8 refs.).

REVIEW

[The Popular Guide to Puppy Rearing. By Olwen Gwynne-Jones. Popular Dogs Publishing Co., Ltd., Hutchinson House, London, W.1. Price 6s. net.]

"The Popular Guide to Puppy Rearing" is a useful reference book at a reasonable price. All prospective dog breeders and all those who are still beginners should read it and even the most experienced breeder will find something of interest in this short Guide. The language may be rather doggy, the grammar and the style may be woolly, but there is no padding and the 97 pages which make up this book are packed with useful tips, practical information and simple diagrams. The only real complaint is that the economics of dog breeding do not appear to have been taken into account and the diets are slightly reminiscent of Mrs. Beeton's Cookery Book 1900. This book could have been given the sub-title "On Choosing and Handling Your Veterinary Surgeon." Only a very hardened veterinary surgeon could read this book and then recommend it to a client without a blush!

REPORT

[**Northern Rhodesia**: Report of the Department of Veterinary Services for the year 1950.]

The activities of the department are divided into three sections: Animal Health Services; Animal Husbandry, Production and Marketing; and Research Services. The Director is Mr. J. H. N. Hobday, O.B.E., and the Senior Research Officer, Mr. J. W. Macaulay. The total strength of professional officers is 17.

In spite of an increase of 4½ per cent. in the cattle population, from 869,000 to 907,000, it was found necessary to increase cattle importations from Bechuanaland in order to meet all local demands for meat.

The territory remained free of serious outbreaks of disease throughout the year and trade in livestock was not hampered because of any disease restrictions. Three diseases receive special mention in the report: foot-and-mouth disease, tuberculosis and contagious epididymitis and vaginitis.

There are two matters in the report that are considered worthy of special mention in this note as being of topical interest: one is the fairly extensive use of a vaccine to control a serious outbreak of foot-and-mouth disease. In dealing with the outbreak of foot-and-mouth disease the opportunity was taken to test out the efficiency of a vaccine made at Mazabuka laboratory by the research staff. The vaccine was prepared by incubating lesion material for 144 hours (in 1948 it was 72 hours) and at first the dose was 0·2 g. of lesion material injected into the mucosa of the tongue. This was altered later to 0·1 g. of material injected into the gluteal muscles. Immunity was tested three weeks later by injecting a severe challenge dose of homologous virus. In this test only 2 per cent. of vaccinated cattle showed generalised lesions, *i.e.*, lesions in the feet showing within eight days of inoculation, as against 40 to 80 per cent. of the controls. Immunity of vaccinated animals was again tested later and it was generally found that the vaccine had established immunity in indigenous cattle for at least nine months. No advantage was observed from the injections of homologous virus three weeks after vaccination. This procedure did not prolong the period of immunity. The use of vaccine in high-grade stock is being tested. In all, about 8,000 cattle were given this vaccine. It is worthy of note that this vaccine, modified by heat, produced a fairly solid immunity within three weeks which was still appreciable at the end of nine months. If the analogy of rinderpest vaccination can be extended to foot-and-mouth disease, between which there are important points in common, and a vaccine can be prepared, modified by passage through a foreign species of animal or by other means, so that while not establishing new centres of infection it can within 48 hours protect animals against in-contact infection, an alternative to the slaughter policy may have been found.

The second matter of topical interest was the importation of 750 heifers from Tanganyika Territory, where rinderpest is endemic and fairly widespread, to Northern Rhodesia, where it does not exist. The measure taken to ensure that these animals did not introduce rinderpest infection was their inoculation with goat virus vaccine A dose of antrycide was also given to protect against trypanosomiasis infection and the migration was carried out without accident. The experience of this importation should be remembered when the time comes, as come it must, to consider seriously the importation of beef carcases into Britain and other European countries from territories of Africa where rinderpest, although subdued, has not yet been completely eradicated.

Rabies, although still causing concern, showed a reduction in incidence of 50 per cent. during the year. For this reduction the D.V.S. divides the credit between the activities of Canine Control Units and the effects of the vaccine which is now being prepared at Mazabuka laboratory. The vaccine consists of 30 per cent. sheep or goat brain tissue with 1 per cent. phenol added. It is inactivated by incubation at 37° C. for 30 hours and stored in a cold room or ice chest for an average of five months. Four vaccinated dogs that were known to have been bitten by rabid dogs were still healthy after eight months. Altogether, during the year some 8,000 doses of vaccine were administered. An effective vaccine used on a large scale is bound to have an appreciable influence in reducing the incidence of the disease and finally exterminating it.

Tuberculosis in cattle is now being discovered to be more prevalent in the Colony than was thought. It is now found to be fairly common among cattle in the Eastern Provinces and it has a scattered and sporadic incidence in other provinces. Another disease which has suddenly come into prominence in the Colony is contagious epididymitis and vaginitis. Although its actual presence in the Colony has only now been discovered, it is thought that the disease has been present for many years. In the control of trypanosomiasis phenanthridinium continues to be the drug of choice, and some 17,000 doses were issued. The drug has proved of great value in permitting the movement of cattle from infected areas. Only one injection is needed. In experimental work carried out by the research staff to ascertain the value of antrycide as a protection against infection with *T. congolense* it was found that a single dose of the methylsulphate at the rate of 5 mg. per kg. protected cattle against a single artificial challenge dose of *T. congolense* for five months but not for six.

The research staff also conducted experiments to find out the relative merits of various insecticides in the control of ticks in ranch cattle. The results of this work to date point to the superiority of DDT in controlling the local blue ticks and the superiority of BHC against the local bont ticks (amblyoma)—Toxaphene (spray), a chlorinated camphene preparation, was proved to be more efficient in the control of ticks than either BHC, DDT or 0·16 arsenic dip wash, and its value was not increased by the addition of BHC to the solution. Cattle dipped in the modern insecticides, according to the Officer i/c Tick Control, have better skin bloom than those dipped in arsenical preparations.

In the Animal Husbandry section of the report it is recorded that the best beef results were obtained from crossing pure-bred Angoni bulls with Northern Rhodesia grade cows and with pure-bred Angoni cows. The calculated live weight of beef production in four years per unit of 100 cows was 41,559 lb. and 40,827 lb. for the above types of cattle, respectively, as against only 23,703 lb. and 11,054 lb. for the cross between Hereford-Africander bulls and Northern Rhodesia grade cows.

The high standard of practical benefit to the livestock industry which has been laid down by the Director of Veterinary Services as the duty of the department has been loyally and efficiently maintained by both the Field and Research sections of the staff. W. W. H.

Those interested are invited by Glaxo Laboratories Ltd., Greenford, Middlesex to write for a copy of their publication "Research" issued on the completion of enlarged premises for the research division. Tastefully produced on art paper, with fine illustrations (those in colour being by well-known artists) the organisation, departmental activities and the library are described with the skill that makes factual information compelling reading.

QUESTIONS IN PARLIAMENT

THE VETERINARY SURGEONS ACT, 1948

Application for Licences Under Section 7

Committee Report

Mr. G. Brown (Feb 26th) asked the Minister of Agriculture whether he has now received the report of the Committee set up to consider the wording of Section 7 of the Veterinary Surgeons Act, 1948; and whether he proposes to publish the report.

Sir T. Dugdale: This Committee, which was set up to advise the Minister on problems raised by certain applications for licences under Section 7 of the Veterinary Surgeons Act, 1948, reported in January. I shall be getting in touch with the applicants' societies and the Royal College of Veterinary Surgeons about the report shortly. I have not at present taken a decision as to publication.

. . . . .

Transit of Horses

Colonel Clarke (February 25th) asked the Minister of Agriculture to what extent the present orders which govern the export of horses from this country are applicable to countries outside Europe.

Sir T. Dugdale: The general provisions that relate to the method of carrying horses and the fittings of vessels apply to horses carried to any port outside Great Britain. The special provisions requiring horses to be subjected to a veterinary examination before shipment and specifying a maximum age and certain minimum values, which were designed to prevent the export of old or worn-out horses to the Continent for slaughter, apply only to horses carried to a port in Europe outside the United Kingdom, the Channel Islands and the Isle of Man.

Colonel Clarke asked the Minister of Agriculture whether he will take the necessary steps to arrange that the present provision making it obligatory to rest cattle after their arrival at ports in this country prior to their being moved inland shall equally apply to horses arriving at such ports.

. . . . .

Horses (Safety Regulations)

Mr. C. S. Taylor (February 25th) asked the Minister of Transport whether he is aware of the danger to the public caused by allowing horses either to be ridden or led after dark without a light; and what steps he proposes to take to deal with the matter.

Mr. Maclay: I am aware that this practice has its dangers, although it is not the cause of more than a fractional percentage of total road accidents. I will see whether advice on this subject can be included in the Highway Code when it is next revised. Meanwhile, I will consider other means of bringing the matter to the attention of those concerned.

. . . . .

Atomic Energy Research (Animals)

Sir T. Moore (February 25th) asked the Parliamentary Secretary to the Ministry of Works, as representing the Lord President of the Council, what animals are used in this country for experiments in connection with atomic energy research; and whether he will give an undertaking that dogs will not be used for this purpose.

Mr. Molson: Research on the biological effects of atomic energy is in progress at a number of centres; experimental work involves the use of animals of different species such as mice, rats, guinea-pigs and monkeys. All this work is primarily directed towards the protection of human beings exposed to radiation or to the improvement of methods of radiotherapy and no guarantee can be given that dogs will not be used.

* * * * *

WHIPSNADE ZOOLOGICAL PARK "COMES OF AGE"

Whipsnade Zoological Park is this year to celebrate its coming of age, and in intimating that a special programme of events is being planned in honour of the occasion, *The Times* recalls that the original conception of the park, which is the property of the Zoological Society of London, was due to the late Sir Peter Chalmers Mitchell, for many years Secretary of the Society. He first proposed the establishment, by the Society, of a zoological park in the country in 1903, but the idea took many years to materialise. In March, 1927, the chief part of the Whipsnade estate, some 420 acres, was bought. The area is now 560 acres, of which roughly 400 are included in the park and 160 are farmland. The park first opened its gates on May 22nd, 1931.

The laying out and planning of the estate were the work of Chalmers Mitchell and of Dr. G. M. Vevers, then superintendent of the Society. Captain W. P. B. Beal, M.R.C.V.S., was the first resident superintendent at Whipsnade, and on his retirement in 1947 he was succeeded by Mr. E. H. Tong.

NOTES AND NEWS

Diary of Events

Mar. 12th.—Meeting of the Technical Development Committee, B.V.A., at 36, Gordon Square, London, W.C.1, 10.30 a.m.

Mar. 12th.—Meetings of the Editorial Committee, B.V.A., at 36, Gordon Square, W.C.1, Executive 2 p.m., Main 3.30 p.m.

Mar. 14th.—Annual Meeting of the North of England Division, B.V.A. at King's College, Newcastle-upon-Tyne, 10.30 a.m.

Mar. 20th.—Society of Women Veterinary Surgeons: Visit to The National Institute for Research in Dairying, Shinfield, Reading, 2.15 p.m.

Mar. 20th.—Meeting of the Herts and Beds Division, B.V.A., at Luton (The George Hotel), 7.30 p.m.

Mar. 20th.—Visit of the Society of Women Veterinary Surgeons to the National Institute for Research in Dairying, Shinfield, Reading.

Mar. 27th.—Annual General Meeting of the Western Counties Division, B.V.A., at Exeter (Imperial Hotel), 11.30 a.m. Annual Luncheon 1 p.m. Afternoon Session 2 p.m.

Mar. 27th.—Meeting of the South Eastern Division, B.V.A., at Maidstone (Royal Star Hotel), 2.30 p.m.

Mar. 28th.—Yorkshire Division, B.V.A. Dinner-Dance at Leeds (Parkway Hotel).

April 29th, 30th, and May 1st.—Meetings of Council and Committees, B.V.A., in the Royal (Dick) School of Veterinary Studies, Edinburgh.

Sept. 8th—13th.—Seventieth Annual General Meeting and Congress of the British Veterinary Association, at Harrogate.

* * * * *

PERSONAL

Birth.—Mackenzie.—On January 23rd, 1952, in Khartoum Civil Hospital, Sudan, to Mary (*née* Burrow), wife of Peter Z. Mackenzie, M.B.E., S.V.S.—a daughter.

Steven.—On February 25th, 1952, at Tunbridge Wells Maternity Home, to Shirley, wife of Henry John Steven, B.Sc., M.R.C.V.S., a daughter—Jennifer.

* * * * *

R.C.V.S. OBITUARY

Hammond, John, Bale, Fakenham, Norfolk. Graduated London, April 1st, 1884. Died February 2nd, 1952; aged 89 years.

Swanston, Arthur Nelson Matcham, Major, R.A.V.C. (retd.), Hillstow, Bank Crescent, Ledbury, Hereford. Graduated London, May 21st, 1898. Died January 27th, 1952.

Rees, William David, J.P., Craigside, Penygraig, Glamorgan Graduated Edinburgh, March 29th, 1897. Died February 23rd, 1952; aged 75 years.

. . . . .

The Late Mr. John Hammond, M.R.C.V.S.

Mr. John Hammond, who died at Sheringham in his 90th year, was one of the first men in Norfolk to drive a motor-car and as a veterinary surgeon in the early days of motoring was viewed with suspicion by the farmers whose animals he attended. He practised his profession in North Norfolk for over 50 years. His home was at Church House, Bale, from where he moved about six years ago to live at Holt. He went to Sheringham about three years ago.

The son of the late Mr. John Hammond, of the Manor House, Bale, he was the oldest old boy of the Paston Grammar School. In his younger days he was an enthusiastic cricketer. He was also a keen bowls player and almost until the end of last summer played regularly at Sheringham, where he was a member of the Morley Club. He was unmarried and leaves two brothers and a sister.

. . . . .

The Late Mr. W. D. Rees, J.P., M.R.C.V.S.

It is with the deepest regret that we record above the death of Mr. William David Rees, of Penygraig, who was walking with his dog on the mountainside near his home when he collapsed and died.

The whole of his professional life was spent as a Colliery Veterinary Surgeon in South Wales, except for a period when he was a Veterinary Surgeon in the Boer War. He was Chief Veterinary Surgeon to the Powell Duffryn Collieries and on nationalisation of the industry he became Divisional Veterinary Surgeon to the South-Western Division of the National Coal Board. He retired two years ago. Many will recall the exhibit of pit ponies which he helped to organise at the Windsor and Olympia Shows in the 1930s. He had been on the Council of the Royal College of Veterinary Surgeons and was also a Past-President of the Mid-West Division of the B.V.A. and a member of Council of the Association.

XUM

AN APPRECIATION

The sudden death of Mr. W. D. Rees has taken from our profession one of its outstanding personalities and an extremely capable and observant equine veterinary surgeon in South Wales. For over 40 years his work as a full-time veterinary surgeon in colliery practice gave him a distinction in dealing with equine maladies and a sense of discrimination that all envied and few of us can hope to emulate.

Patient and courteous as he always was, "W. D." (as he was known to us all) soon gave a young graduate a high degree of confidence in dealing with and treating horses; more than that, his manner of approach to mining officials was continually a model of tact but nevertheless deliberate and firm. As sometimes happens in colliery work, recalcitrant officials have to be taken to task and reminded of some infringement of the Coal Mines Act, and in performing this sometimes difficult task his friendship with them was never allowed to influence the exercise of his sense of duty and fair play to the horses. The officials always did what he asked of them: seldom did he have to approach more than once. The fact that "W. D." was around on a tour of inspection, left no doubt in a colliery manager's mind that he would soon hear whether conditions were satisfactory or not. It was typical of him that whether his approach was to a high official or to one much lower down the scale he was always the same; I have never known anyone quicker to get "on the right side" of people than W. D. Rees. And yet notwithstanding his corrective interjections no mining official (and naturally he was in contact with a very large number) ever showed him anything but respect and attention. His very presence somehow demanded both. Short in stature, slim, and erect in gait, he often gave people the impression of an ex-Army officer, which is what he was, albeit a very long time ago: Service in the South African War was one of the many things he enjoyed chatting about, but never boastfully. An initial impression of him was one of aloofness and yet I have seldom met anyone more approachable, while he was in fact a first-rate conversationalist.

Devoid of sloppy sentimentality, he was generous and warm hearted and he never turned a deaf ear to a genuine call for help. I knew of many examples of his warm-heartedness and I think the one following instance, being typical of his nature, is worthy of record. One day whilst he was acting as Chairman of the Magisterial Bench a railway employee appeared on a charge of theft, was duly found guilty and fined heavily—so heavily, indeed, that Mr. Rees's co-magistrates humorously chided him for his unusual severity. Later that evening he got the man to come to see him, whereupon he handed to him a generous contribution towards the fine! He was, indeed, a devout believer in practical Christianity.

Mr. Rees was an eminent Freemason, known not only in his own Lodge but throughout the province; his presence was understood to include a speech for he was an accomplished speaker; he was as careful in composing his public utterances as he was in his choice of clothes—he was always immaculately attired (even his pit clothes suggested a good tailor).

Many changes have taken place in mining methods since the end of the last century; so, too, has the type of horse required for underground purposes, in height and in conformation. Colliery horses were used long before Mr. Rees's day, but I believe I am correct in saying that he was one of the best judges of that accident of nature—the mongrel, for, whilst we have in our mind's eye the picture of a typical South Wales "pitter," it was and still is a cross-bred animal. At the close of the last century there was a small band of colliery veterinary surgeons who by the process of selection, purchasing or refusing as they thought necessary, encouraged the breeding of a short-limbed, stocky cob, medium height (14·2—15 hands), capable of great strength. These venerated veterinary surgeons (seemingly out of another era) knew the type of horse they should have, and eventually got it. It is true that the colliery cob of to-day in South Wales is smaller in stature, but the true "pitter" still has the conformation of a miniature Shire Horse. In these matters W. D. Rees was forthright in his views and not a little credit must go to him for the continued selection of this type of animal for colliery work.

It was by one of those twists in the economy of colliery undertakings that I came under the supervision of Mr. Rees in 1942, and I must not omit to take this opportunity, sad as it is, readily to acknowledge my gratitude to him for all the help he gave me not only in professional affairs but also in my conduct and approach in all matters affecting our fellow men.

If it be true that the standard of care and treatment of horses in the South-Western Division of the National Coal Board is high (and I sincerely hope it is) then assuredly much of it is a pattern of the life's work of the late Mr. W. D. Rees.

His colleagues extend to his son, Mr. David Rees, of Newport, and his daughter, Mrs. Wynford Davies (Penygraig) profound sympathy at his passing: he was a wonderful father and a fine personality.

T. Idwal Thomas.

N.F.U. Tribute to the late Mr. H. W. Steele-Bodger.—Mr. Knight, the General Secretary of the B.V.A., has been asked by the National Farmers' Union to convey to Mrs. Steele-Bodger and her family the sympathy of its Diseases of Animals Committee in the death of Mr. Harry Steele-Bodger. "He was well known to many of our members," writes the General Secretary of the Union, "who greatly appreciated his unceasing work on behalf of the profession, and for farmers. Our Committee felt that his untimely death is a loss to all having the welfare of the livestock of the country at heart."

* * * * *

VETERINARY SURGEONS ACT, 1948

Supplementary Veterinary Register

The Council of the Royal College of Veterinary Surgeons has directed the Registrar under the above Act to register in the Supplementary Veterinary Register the names of the persons set out below.

Date of Registration: *March 1st*, 1952.

Chatters, Reginald Bertie, 103, Sommervel Road, South Harrow.
Cooke, Herbert Palmer, 4, Somers Road, Southsea.

* * * * *

REJECTION OF WELSH PLEA FOR A VETERINARY COLLEGE

In its issue of February 29th the *Cambrian News* reports that the Ministry of Agriculture has turned down a request that a veterinary college should be established by the University of Wales. "This information was conveyed to the Welsh Committee of the National Farmers' Union which met in London. It was stated that as all six veterinary schools in Great Britain are now within universities, the responsibility for grant aiding veterinary education has passed from the two Agricultural Departments to the University Grants Committee."

* * * * *

FILM PREMIERE IN AID OF THE ANIMAL HEALTH TRUST

As part of the current campaign to increase the funds of the Animal Health Trust, Mr. J. Arthur Rank gave the proceeds of the World Film Première of Arnold Bennett's "The Card," which took place at the Odeon Theatre, Leicester Square, on February 28th. Mr. Rank is Chairman of the Trust's Executive Committee and it is understood that a sum of the order of £14,000 will be handed over to the Trust as a result of his generosity.

To help the organisation still further, the paper for the magnificent souvenir programme was given free by the Bowater Corporation and the printing was carried out at cost by Sun Printers Ltd. A large number of agricultural and general commercial companies took advertising space in the programme, some of them using this space to extol the work of the Trust. This support from so many quarters gave the greatest satisfaction to the President, the Executive Committee and the Council of the organisation.

Mr. Rank did not allow any costs to be borne by the Animal Health Trust and a finishing touch was given to the brilliant assembly by the superb banks of flowers provided by Mr. Rank personally and the highly effective and colourful dressing of the stage on which the Metropolitan Police Band appeared before the performance and also in a most effective tableau at the end when the National Anthem was played.

The programme consisted of a Disney Film featuring the famous comic dog "Pluto," a short news reel, which included some interesting shots of the Trust's Mobile Laboratory at Crufts, and, finally, the principal film, which was extremely well received by the crowded audience.

It had been hoped that the Duchess of Kent would be the guest of honour on this occasion, but she was prevented from attending by Court mourning. Among the distinguished company present were the Duke of Norfolk (President of the Trust), who was accompanied by the Duchess of Norfolk, Sir Humphrey de Trafford, Miss Yule, Mrs. Morriss, Lord and Lady Stamp, Sir Richard and Lady Haddon, Mr. and Mrs. J. Arthur Rank, Air Commodore and Mrs. Cecil Wright (Chairman, The Kennel Club), Mr. Vincent Routledge, Dr. W. R. Wooldridge (Scientific Director and Chairman of Council of the Trust), and Mrs. W. R. Wooldridge, Mr. Cole Tinsley (Deputy President, The N.F.U.), Mr. and Mrs. F. R. Scott, Mr. and Mrs. J. K. Knowles (General Secretary, N.F.U.), Mr. and Mrs. Richard Bolton, Mr. and Mrs. Hodgman, Dr. and Mrs. R. F. Gordon, Professor and Mrs. Wm. Miller.

Film stars Valerie Hobson and Petula Clark were also present and programme sellers included the Marchioness of Blandford and Mrs. Gerald Legge.

The profession was well represented and included among others, Mr. A. J. Wright (President of the British Veterinary Association), and Mrs. Wright, Mr. W. G. R. Oates (Registrar of the Royal College of Veterinary Surgeons), and Mrs. Oates, Miss Joan Joshua, and Mr. and Mrs. G. N. Gould.

LEGAL NOTES

"A Menace to Animals"

R.C.V.S. Stops Man's "Lucrative Racket" in Yorkshire

"The Bench appreciates the importance of this prosecution. This case shows the wisdom of this enactment which was designed to prevent unnecessary suffering to animals. We hope that the fullest publicity will be given to it." This comment was passed by the Chairman of the Bridlington Magistrates when, on February 18th, the Bench convicted Cyril Arrand Garnett (43), of Selwicks Drive, Flamborough, on each of three summonses for practising veterinary surgery in contravention of the provisions of the Veterinary Surgeons Act, 1948. The case was brought by the Royal College of Veterinary Surgeons.

Prosecuting on behalf of the Royal College of Veterinary Surgeons, Mr. R. Lyons (instructed by Dawson, Loncaster and Co.) said the maximum penalty was a fine of £100 on each summons. Garnett came to the district shortly after the war, first of all to Flamborough and then to Bridlington, said Mr. Lyons. So far as the Royal College of Veterinary Surgeons had been able to ascertain—he could not prove it definitely—Garnett had had no previous medical or veterinary education or training.

At first he had described himself on a nameplate outside his clinic at 38, Flamborough Road, as a veterinary practitioner, but that description became illegal in 1948 and so he no longer used it. But there was no doubt at all that for some years, and since the Veterinary Surgeons Act of 1948 was passed, he had been carrying on an extensive veterinary practice, and, in fact, it would have been open to the prosecution to have brought many other prosecutions instead of those three.

Mr. Lyons said that it was quite possible there would be found people who had been satisfied with what he had done, and no doubt there were many people who had great faith in Garnett, but it was equally true in the submission of the prosecution, and as would be seen from the evidence, that he had by his ignorance caused unnecessary suffering to animals.

Being unqualified, Garnett could not prescribe drugs, some of which were absolutely necessary in the case of certain ailments. The evidence showed that for almost every ailment and disease, some of which might have been instantly relieved by such drugs as penicillin, Garnett's almost universal remedy was to dose the animals with garlic pills and put them on a starvation diet of honey and water.

A typical example was the case of a cat belonging to Major and Mrs. Curry, of 81, Eighth Avenue. The cat, said Mr. Lyons, became ill towards the end of September. Mrs. Curry took it to Garnett's surgery. He diagnosed influenza and the treatment he prescribed was no food at all, honey and water to drink, white pills every four hours, and olive oil. The condition of the cat became worse and it had some trouble with its eye. About a week later Garnett was asked to call at the house and he examined the cat again. By that time the cat's eye was swollen and it was discharging pus. Garnett gave Mrs. Curry a tube of ointment to apply to the cat's eye, and he said it had conjunctivitis. Then he looked in the cat's mouth, and said it had a sore throat and was suffering from neuralgia. He pushed some pink pills down its throat. Major Curry asked him why he did not use "M and B" drugs, and Garnett said he preferred herbal treatment, which he thought to be more quickly effective. He did not say he was not allowed to use "M and B" or other drugs. Garnett continued to visit the house for three weeks, said Mr. Lyons, but the cat became weaker and weaker. He told them to increase the dose of white pills and continue with the olive oil treatment, but the cat got steadily worse, and Mrs. Curry became very worried. They fully thought that Garnett was a veterinary surgeon.

On October 24th, continued Mr. Lyons, Garnett examined the cat again. He put his ear to its chest and diagnosed pneumonia. When told that he had been treating the cat all that time and it was getting no better, it was alleged, Garnett replied: "Well, you know, you must believe in the Almighty." He gave some more pills and also advised that the cat should be given drops of brandy and water.

On October 25th Major and Mrs. Curry called in a Mr. Horrox, a qualified veterinary surgeon, who quickly diagnosed that the animal's complaint was an abscess behind the right eye, caused by a bite. Mr. Horrox found there was absolutely no abnormality of the cat's chest or throat and there was no pneumonia, neuralgia, or 'flu. Mr. Horrox treated the cat with penicillin and within four days it was completely better and had been all right ever since.

The pills, of course, said Mr. Lyons, had been of no use for the cat's condition. If it had been taken to a qualified veterinary surgeon at first it would have been saved a whole month's unnecessary suffering.

Dog Cases

Giving a second case, Mr. Lyons said a Mrs. Yeaman had a Boxer dog puppy of about five months old. It did not appear to be improving in weight so she decided to obtain professional advice and believing that Garnett was a qualified man she took it to him. Garnett examined the dog, took its temperature, and said it indicated worms. He prescribed pills and ordered the dog to be put on a starvation diet. On the second day it became very hungry and restive and eventually hysterical, throwing itself on the ground. Mrs. Yeaman saw the R.S.P.C.A. inspector and on his advice saw a qualified veterinary surgeon, who found there was nothing wrong with the dog except that it was undernourished. It was immediately put back on full diet and had been all right ever since.

The third case, said Mr. Lyons, related to a Boxer bitch, which died. It was owned by Miss Meek, of the Victoria Hotel, and when it was about three months old she asked Garnett to inoculate it against distemper. Garnett, alleged Mr. Lyons, said he did not agree with inoculation and said he had some pills which if given every day for a certain period would prevent distemper. Later the dog developed distemper, and it was examined by Garnett, who gave a long list of instructions for treatment. The dog quickly showed signs of paralysis, and in the submission of the prosecution, said Mr. Lyons, that was the time at any rate when, if Garnett had been a lover of animals, he would have admitted his inability to treat the animal further and insisted that a qualified veterinary surgeon should be consulted. He did not, however, and gave the dog some pills which he called paralysis pills.

He continued to treat the dog, but it got worse, and eventually, alleged Mr. Lyons, Garnett said: "I hope she will get better, but I am afraid it is in the hands of the Almighty. You will have to pray." It was then that Miss Meek realised Garnett did not know what he was doing, and she took the bitch to Scarborough. It was examined by a qualified veterinary surgeon, who said that if it had been inoculated as soon as the paralysis had shown itself the bitch might have been all right, but it was too late then. Shortly afterwards it died.

"In the submission of the prosecution these facts illustrate that Garnett by committing these offences—practising as a veterinary surgeon—whatever his intentions may have been, has been a menace to animals and the cause of a great deal of unnecessary suffering," said Mr. Lyons. It was not disputed by the prosecution that he was a man who had a way with animals and that on occasions he may have done animals good, but on some occasions he had caused unnecessary suffering. Garnett knew perfectly well that he was not entitled to practise veterinary surgery in that way and taking on himself the treatment of animals which he thought were seriously ill was nothing more nor less than a racket—and no doubt a lucrative racket at that, remarked Mr. Lyons.

"Technical Infringement" Plea

Mr. W. D. Pinkney (defending) said that Garnett had always been very interested in sick dogs and domestic animals. From 1932 to 1936 he had assisted in the work in Lancashire and had gained a good deal of experience there. From 1936 to 1940 he was kennelling and looking after sick dogs and treating them, as he was perfectly entitled to do. Later he started kennels at Flamborough and treated animals, as he was entitled to do. He (Mr. Pinkney) had advised a plea of guilty of a technical infringement—he put it no higher than that. Garnett had not deliberately gone against the regulations. He did not realise that those simple treatments of animals were an infringement. Garnett had saved many animals from suffering; he had done very well for owners of animals and they were very grateful for it.

Garnett, said Mr. Pinkney, denied that he had ever suggested the help of the Almighty should be invoked; what he had said was that things took time and one had to rely a good deal on nature. He had not used drugs; he had used herbal remedies. Garnett also denied that he had caused animals unnecessary suffering; he had always done the best he could in the circumstances. He added that Garnett was a man of excellent character, and one who was most unfortunately precluded from getting on the supplementary veterinary register.

The Chairman said that in view of an undertaking by Garnett that the practice would cease they would impose a nominal fine of £1, and £2 2s. costs on each of the three summonses. His appeal for full publicity for the case met with a widespread response throughout the national Press—including the *Manchester Guardian* and the *Daily Mail*—with the *Yorkshire Post* and all district papers, while it is understood that this conviction was mentioned in a B.B.C. news bulletin in the Northern programme, "News from the North."

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

ANTHRAX:

Lanarks.—Bethern Farm, Auldhouse, East Kilbride, Glasgow (Feb. 28th).

Lancs.—Lees House Farm, Cow Ark, Clitheroe; Knacker Yard, Whitebirk, Blackburn (Feb. 28th).

Salop.—Eyton-on-Severn Farm, Wroxeter, Shrewsbury (Feb. 22nd).

Staffs.—Ranton Hall Farm, Ranton, Stafford. (Feb. 25th).; Cotton Hall Farm, Oakamoor, Stoke-on-Trent (Feb. 25th).

Yorks.—Home Farm, Kirklees Park, Clifton, Brighouse (Feb. 25th).

FOOT-AND-MOUTH DISEASE:

Beds.—White Horse Farm, Hockliffe, Leighton Buzzard (Feb. 26th).; Ministry of Food, Co-op Slaughterhouse, 22, Hightown Road, Luton (Feb. 26th); Ivy Farm, Tebworth, Leighton Buzzard (Feb. 28th).

FOWL PEST:

Lancs.—Oakland, Lytham Road, Freckleton, Preston (Feb. 22nd).

Suffolk (W).—Grove House, Wilde Street, Beck Row, Bury St, Edmunds (Feb. 22nd).

SWINE FEVER:

Beds.—16, High Street, Sandy (Feb. 25th).

Bucks.—Railway Farm, Buckingham Road, Bletchley (Feb. 27th).

Kent.—South Street House, South Street, Whitstable (Feb. 27th).

Lancs.—Compley Farm, Blackpool Old Road, Poulton-le-Fylde (Feb. 27th); 482, Newchurch Road, Stackstead (Feb. 28th); Harrison's Farm, Chapel Lane, Longton; Tuson's Farm, Bee Lane, Penwortham (Mar. 1st).

Lincs (Holland).—Poplars Farm, Holland Fen, Dogdyke (Feb. 27th).

Middlesex.—Manor Farm, Charlton, Shepperton (Feb. 27th); Model Farm, Glebe Avenue, Ruislip (Feb. 29th).

Northants.—Grange Farm, Irchester, Wellingboro' (Feb. 25th); Plumers Arms, Brackley (Feb. 27th).

Notts.—Barne Farm, Ruddington (Mar. 1st).

Salop.—Walford Manor, Baschurch (Feb. 28th).

Staffs.—49, Merridale Road, Wolverhampton (Feb. 25th); 190, Wrights Lane, Old Hill, and 90, Scindwell Road, West Bromwich (Feb. 26th); Piggeries at Peel Street, Tipton (Mar. 1st).

Surrey.—Madge's Field, Lower Road, Great Bookham (Mar. 1st).

Warwicks.—Peartree Farm, Warstock, Birmingham (Feb. 25th); 155, Slade Road, Sutton Coldfield; Holly Lane Pig Farm, Erdington (Feb. 26th); Couchman's Farm, Hollyberry End, Meriden (Feb. 28th).

Worcs.—Langebeer Farm, Alcester Road, Wythall (Feb. 25th); Mawne Bank, Hayseech Lane, Halesowen (Feb. 26th).

Yorks (W.R.).—Boathouse Farm, Derbydale Road, Thurnes, Wakefield; Hill House Farm, Holmforth, Huddersfield (Feb. 26th).

* * * * *

PROTECTION OF ANIMALS BILL, NORTHERN IRELAND

The Protection of Animals Bill, the text of which was issued on February 26th at Stormont, seeks to increase the penalties prescribed by the Protection of Animals Act, 1911, for repeated offences of cruelty.

Prohibition of the docking and nicking of horses brings the law in this respect into line with that in Great Britain since 1949. Another clause prohibits public contests which might result in injury or cruelty to untrained horses or bulls. An obligation is to be placed on a person to water and feed, in the morning and afternoon, animals confined by him or under his directions, in a pound, unless they are being slaughtered for butchers' meat. Another clause provides for the inspection of spring traps at reasonable intervals, and increases the penalty for an infringement by making it an offence of cruelty.

The police, in consultation with a veterinary surgeon, will be able to take steps to prevent suffering by a diseased or severely injured animal by having it destroyed. The police are also enabled to cause the immediate destruction of a dog or cat severely injured on the highway.

* * * * *

PROTECTION OF DEER IN SCOTLAND

Last week there was published the text of the Poaching of Deer (Scotland) Bill, the purpose of which is to give the police and courts in Scotland powers to deal with deer poaching, particularly poaching by gangs. The Bill makes it an offence to take or wilfully to kill deer without authority, or at night, and also to kill deer by means other than a non-repeating firearm.

Penalties for offences against these provisions range from a maximum fine of £20 on summary conviction to a maximum fine of £100 or two years' imprisonment on conviction on indictment. Heavier maximum penalties are prescribed for offences committed by two or more persons acting together. It is further provided that possession of deer or a firearm in circumstances which give reasonable ground for suspecting that possession is connected with one of these offences is itself an offence. The Bill does not apply to action to prevent damage to agriculture in pursuance of the Agriculture (Scotland) Act, 1948.

The Bill seeks to confer on police officers new powers of seizure and, where a gang offence is suspected, of search. It is provided that any constable may arrest any person found to be committing any offence under the Bill. The Bill also proposes to empower the courts to order forfeitures of deer, weapons, vehicles or boats, according to the circumstances of the offence, and provides for the disposal of deer or articles forfeited.

* * * * *

IMPROVED CONCEPTION RATES FROM A.I.

At a record percentage of 67·6, there was an improved conception rate from M.M.B. artificial insemination centres during 1950-51, states the Board's Production Division in its second annual report, shortly to be reviewed in our columns. "It is not possible to attribute this improvement to any single factor," the report comments. "While the breeding state of the cows may have been better as a result of natural conditions or the increasing use of S.19 vaccine to control abortion, it is possible also that greater experience in techniques and semen handling methods has played a part." One-fifth of the dairy cattle in England and Wales were artificially inseminated, either from Milk Marketing Board or non-board centres.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

OEDEMA DISEASE OF SWINE

Sir,—Knowledge of the etiology of oedema disease in swine is not yet complete, but the disease provides an interesting clinical study.

My experience in a limited number of cases is that a precipitating factor operates prior to manifestation of clinical symptoms. This factor appears to be an alteration in feeding bringing about a lowering in the plane of nutrition, which, acting as the precipitating factor, is followed by symptoms in 7 to 10 days.

During the wet autumn of 1951, the feeding of lush fodder crops without additional protein was followed by deaths in many cases from acute oedema disease, subsequently confirmed by *post-mortem* examination. The fodder crops involved were fodder beet, kale and cabbage. It is interesting to record that the pigs on fodder beet showed a tendency to become slightly blown from the onset of feeding.

Whilst many drugs, including vitamin B_1 and the antihistamines, have been tried, treatment of pigs showing inco-ordination of movement has often proved unsatisfactory, and bran feeding combined with Epsom salts has been used as a basis in all cases, together with reversion to an adequately balanced ration, and subsequent re-introduction of fodder crops as a proportion of the food intake, with increased protein in the form of fish meal added to the cereal part of the ration to effect the proper balance necessary.—Yours faithfully, WILFRED BEAUMONT, 12, Landguard Road, Southampton. March 1st, 1952.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
1st to 15th Feb., 1952	20	5	7	—	—	47
Corresponding period in—						
1951	25	2	110	—	1	51
1950	19	4	6	—	3	—
1949	8	1	27	—	3	1
1st Jan., to 15th Feb., 1952	62	22	39	—	—	114
Corresponding period in—						
1951	81	15	368	—	4	124
1950	56	4	27	—	13	—
1949	24	1	72	—	10	3

* Excluding outbreaks in Army Horses.